

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:
a pressing roller for pressing a sheet at the time of a fixing operation;
a fixing roller having a hollow portion, facing said pressing roller, rising in temperature by being heated, and fixing a developer to the sheet by sandwiching the sheet between said fixing roller and said pressing roller; and
induction heating coils including a center-section coil and an end-section coil, and arranged inside said fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil, the space being adjusted so that the temperature of one surface of said fixing roller, said one surface opposing the space, is not higher than the temperatures of the other surface of said fixing roller, said other surface opposing central portions of the coils.

Sub
91
2. The image forming apparatus according to claim 1, further comprising overheating prevention devices for monitoring an abnormally overheated condition of said fixing roller, and for breaking the circuit so as to turn-off the power to the two coils at the time of the occurrence of the abnormally overheated condition in which the temperature of the one surface of said fixing roller is more than a predetermined temperature, said overheating prevention devices being provided so as to oppose the center-section coil and the end-section coil, but not to oppose the space between the center- and end-section coils.

3. The image forming apparatus according to claim 1, wherein either the center-section coil and the end-section coil are simultaneously or alternately turned on and heated, or only one of them is turned on and heated.

4. The image forming apparatus according to claim 1, further comprising a heating control section for

independently controlling the turn-on or turn off of the power to the center-section coil and the end-section coil.

5. The image forming apparatus according to claim 4, wherein said heating control section includes a main coil heating control section for controlling the turn-on or turn-off of the power to the center-section coil, and a sub coil heating control section for controlling the turn-on or turn-off the power to the end-section coil.

6. The image forming apparatus according to claim 4, further comprising:

temperature monitor detecting the surface temperature of said fixing roller being heated by the center-section coil and the end-section coil; and

switch controller controlling said heating control section based on an output from said temperature monitor such that the temperature of said fixing roller becomes suitable for carrying out a fixing operation by simultaneously or alternately turning on the center-section coil and the end-section coil.

9. The image forming apparatus according to claim 1, wherein said overheating prevention devices are thermostats or thermal fuses for automatically breaking the circuit at the time of an abnormal overheating condition.

7. The image forming apparatus according to claim 6, wherein said temperature monitor is a first thermistor for detecting the surface temperature of the central portion of said fixing roller and a second thermistor for detecting the surface temperature of one end portion of said fixing roller.

8. The image forming apparatus according to claim 7, wherein the heating control of the center-section coil is performed based on an output of the first thermistor, and

the heating control of the end-section coil is performed based on an output of the second thermistor.

- Sub 131 Cont
- 3 10. The image forming apparatus according to claim²₃, which is capable of selecting the case where either of the center-section coil or the end-section coil is continuously heated and the case where both of the center-section coil and the end-section coil are heated at a constant duty ratio, in a warming-up mode, a standby/idle mode, and a printing mode.

11. The image forming apparatus according to claim 1, wherein the end-section coil comprises a first coil and a second coil, which are provided at one end and the other end of the center-section coil, respectively.

12. An image forming apparatus comprising:
a pressing roller for pressing a sheet at the time of a fixing operation;

Sub A2

a fixing roller having a hollow portion, facing said pressing roller, rising in temperature by being heated, and fixing a developer to the sheet by sandwiching the sheet between said fixing roller and said pressing roller;

induction heating coils including a center-section coil and an end-section coil, and arranged inside said fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil, the space being adjusted so that the surface temperature of one surface of said fixing roller, said one surface opposing the space, is not higher than the temperatures of the other surface of said fixing roller, said other surface opposing central portions of the coils in the case where either of the center-section coil or the end-section coil is continuously heated and in the case where both of the center-section coil and the end-section coil are heated at a constant duty ratio, in a warming-up mode, a standby/idle mode, and a printing mode;

a first thermistor for detecting the surface temperature of the central portion of said fixing roller;

a second thermistor for detecting the surface temperature of the end portion of said fixing roller;

a heating control section for controlling turn-on or turn-off of the power to the center-section coil and the end-section coil based on outputs of the first thermistor and the second thermistor; and

overheating prevention devices for monitoring an abnormally overheated condition of said fixing roller, and for breaking the circuit so as to turn-off the power to the two coils at the time of the occurrence of the abnormally overheated condition in which the temperature of the one surface of said fixing roller is more than a predetermined temperature, said overheating prevention devices being provided so as to oppose central portions of the center-section coil and the end-section coil, but not to oppose the space between the center- and end-section coils.

Sub
A2

add A3